

20010-06USA_Sequence_Listing.txt
SEQUENCE LISTING

<110> POSCO
POSTECH Foundation
CHA, Hyung Joon
HWANG, Dong Soo

<120> Mussel Bioadhesive

<130> 20010-06USA

<140> US 10/

<141> 2006-09-20

<150> PCT/KR2005/000888

<151> 2005-03-25

<150> US 60/556,805

<151> 2004-03-26

<160> 35

<170> KopatentIn 1.71

<210> 1

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 1

ggcctgcagc agttctgaag aatacaaggg

30

<210> 2

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 2

gtagatctat acgccggacc agtgaacag

29

<210> 3

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 3

cttgtatddd ccgctgtddd t

21

<210> 4

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<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 4
aaaaacagcg gaaaatacaa g 21

<210> 5
<211> 228
<212> DNA
<213> Mytilus galloprovincialis

<220>
<221> CDS
<222> (1)..(228)
<223> Mytilus galloprovincialis foot protein-5 cDNA

<400> 5
agt tct gaa gaa tac aaa ggt ggt tat tac cca ggc aat act tac cac 48
Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Thr Tyr His
1 5 10 15

tat cat tca ggt ggt agt tat cac gga tcc ggc tat cat gga gga tat 96
Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr
20 25 30

aag gga aag tat tac gga aag gca aag aaa tac tat tat aaa tat aaa 144
Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys
35 40 45

aac agc gga aaa tac aag tat ctg aag aaa gct aga aaa tac cat aga 192
Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg
50 55 60

aag ggt tac aag aag tat tat gga ggt ggt agc agt 228
Lys Gly Tyr Lys Lys Tyr Tyr Gly Gly Gly Ser Ser
65 70 75

<210> 6
<211> 76
<212> PRT
<213> Mytilus galloprovincialis

<400> 6
Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Thr Tyr His
1 5 10 15

Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr
20 25 30

Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys
35 40 45

Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg
50 55 60

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Lys Gly Tyr Lys Lys Tyr Tyr Gly Gly Gly Ser Ser
65 70 75

<210> 7
<211> 180
<212> DNA
<213> mytilus edulis

<220>
<221> CDS
<222> (1)..(180)
<223> 6 times repeated sequence derived from mytilus edulis foot
protein-1

<400> 7
gct aaa ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca 48
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro
1 5 10 15
ccg act tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa 96
Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys
20 25 30
ccg tct tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc 144
Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr
35 40 45
tat aag gct aaa ccg agt tac ccc ccg act tac aaa 180
Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys
50 55 60

<210> 8
<211> 60
<212> PRT
<213> mytilus edulis

<400> 8
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro
1 5 10 15
Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys
20 25 30
Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr
35 40 45
Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys
50 55 60

<210> 9
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Bioadhesive protein(mgfp-150) coding sequence

<220>

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<221>      CDS
<222>      (1)..(411)
<223>      Bioadhesive protein(mgfp-150)

<400>      9
gct aaa ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca      48
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro
  1                    5                    10                   15

ccg act tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa      96
Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys
          20                    25                   30

ccg tct tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc      144
Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr
          35                    40                   45

tat aag gct aaa ccg agt tac ccc ccg act tac aaa agt tct gaa gaa      192
Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ser Ser Glu Glu
          50                    55                   60

tac aag ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt      240
Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly
          65                    70                   75                   80

ggt agt tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat      288
Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr
          85                    90                   95

tac gga aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa      336
Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys
          100                   105                   110

tac aag tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag      384
Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys
          115                   120                   125

aag tat tat gga ggt agc agt gaa ttc      411
Lys Tyr Tyr Gly Gly Ser Ser Glu Phe
          130                    135

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<210>      10
<211>      137
<212>      PRT
<213>      Artificial Sequence

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<400>      10
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro
  1                    5                    10                   15

Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys
          20                    25                   30

Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr
          35                    40                   45

Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ser Ser Glu Glu
          50                    55                   60

Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly
          65                    70                   75                   80

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Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr
85 90 95
Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys
100 105 110
Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys
115 120 125
Lys Tyr Tyr Gly Gly Ser Ser Glu Phe
130 135

<210> 11
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Bioadhesive protein(mgfp-051) coding sequence

<220>
<221> CDS
<222> (1)..(411)
<223> Bioadhesive protein(mgfp-051)

<400> 11
agt tct gaa gaa tac aag ggt ggt tat tac cca ggc aat tcg aac cac 48
Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His
1 5 10 15
tat cat tca ggt ggt agt tat cac gga tcc ggc tac cat gga gga tat 96
Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr
20 25 30
aag gga aag tat tac gga aag gca aag aaa tac tat tat aaa tat aaa 144
Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys
35 40 45
aac agc gga aaa tac aag tat cta aag aaa gct aga aaa tac cat aga 192
Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg
50 55 60
aag ggt tac aag aag tat tat gga ggt agc agt gaa ttc gct aaa ccg 240
Lys Gly Tyr Lys Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro
65 70 75 80
tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca ccg act tat 288
Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr
85 90 95
aag gct aaa cct agc tat cca cct acg tac aaa gct aaa ccg tct tac 336
Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr
100 105 110
ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc tat aag gct 384
Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala
115 120 125
aaa ccg agt tac ccc ccg act tac aaa 411

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Lys Pro Ser Tyr Pro Pro Thr Tyr Lys
130 135

<210> 12
<211> 137
<212> PRT
<213> Artificial Sequence

<400> 12
Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His
1 5 10 15
Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr
20 25 30
Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys
35 40 45
Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg
50 55 60
Lys Gly Tyr Lys Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro
65 70 75 80
Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr
85 90 95
Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr
100 105 110
Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala
115 120 125
Lys Pro Ser Tyr Pro Pro Thr Tyr Lys
130 135

<210> 13
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> Bioadhesive protein(mgfp-151) coding sequence

<220>
<221> CDS
<222> (1)..(591)
<223> Bioadhesive protein(mgfp-151)

<400> 13
gct aaa ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca 48
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro
1 5 10 15
ccg act tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa 96
Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys
20 25 30
ccg tct tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc 144

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Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr		
		35					40					45					
tat	aag	gct	aaa	ccg	agt	tac	ccc	ccg	act	tac	aaa	agt	tct	gaa	gaa		192
Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ser	Ser	Glu	Glu		
		50				55					60						
tac	aag	ggt	ggt	tat	tac	cca	ggc	aat	tcg	aac	cac	tat	cat	tca	ggt		240
Tyr	Lys	Gly	Gly	Tyr	Tyr	Pro	Gly	Asn	Ser	Asn	His	Tyr	His	Ser	Gly		
		65			70					75					80		
ggt	agt	tat	cac	gga	tcc	ggc	tac	cat	gga	gga	tat	aag	gga	aag	tat		288
Gly	Ser	Tyr	His	Gly	Ser	Gly	Tyr	His	Gly	Gly	Tyr	Lys	Gly	Lys	Tyr		
				85					90					95			
tac	gga	aag	gca	aag	aaa	tac	tat	tat	aaa	tat	aaa	aac	agc	gga	aaa		336
Tyr	Gly	Lys	Ala	Lys	Lys	Tyr	Tyr	Tyr	Lys	Tyr	Lys	Asn	Ser	Gly	Lys		
			100					105					110				
tac	aag	tat	cta	aag	aaa	gct	aga	aaa	tac	cat	aga	aag	ggt	tac	aag		384
Tyr	Lys	Tyr	Leu	Lys	Lys	Ala	Arg	Lys	Tyr	His	Arg	Lys	Gly	Tyr	Lys		
			115				120					125					
aag	tat	tat	gga	ggt	agc	agt	gaa	ttc	gct	aaa	ccg	tct	tac	ccg	ccg		432
Lys	Tyr	Tyr	Gly	Gly	Ser	Ser	Glu	Phe	Ala	Lys	Pro	Ser	Tyr	Pro	Pro		
		130				135					140						
acc	tac	aaa	gca	aaa	ccc	tcg	tac	cca	ccg	act	tat	aag	gct	aaa	cct		480
Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro		
					150					155					160		
agc	tat	cca	cct	acg	tac	aaa	gct	aaa	ccg	tct	tac	ccg	ccg	act	tac		528
Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr		
				165					170					175			
aaa	gca	aaa	ccg	tcc	tac	cct	ccg	acc	tat	aag	gct	aaa	ccg	agt	tac		576
Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr		
			180					185					190				
ccc	ccg	act	tac	aaa													591
Pro	Pro	Thr	Tyr	Lys													
			195														

<210> 14
 <211> 197
 <212> PRT
 <213> Artificial Sequence

<400> 14
 Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro
 1 5 10 15
 Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys
 20 25 30
 Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr
 35 40 45
 Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ser Ser Glu Glu
 50 55 60
 Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly

65				70				75				80			
Gly	Ser	Tyr	His	Gly	Ser	Gly	Tyr	His	Gly	Gly	Tyr	Lys	Gly	Lys	Tyr
85				90				95							
Tyr	Gly	Lys	Ala	Lys	Lys	Tyr	Tyr	Tyr	Lys	Tyr	Lys	Asn	Ser	Gly	Lys
100				105				110							
Tyr	Lys	Tyr	Leu	Lys	Lys	Ala	Arg	Lys	Tyr	His	Arg	Lys	Gly	Tyr	Lys
115				120				125							
Lys	Tyr	Tyr	Gly	Gly	Ser	Ser	Glu	Phe	Ala	Lys	Pro	Ser	Tyr	Pro	Pro
130				135				140							
Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro
145				150				155							
Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr
165				170				175							
Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr
180				185				190							
Pro	Pro	Thr	Tyr	Lys											
195															

<210>	15
<211>	354
<212>	DNA
<213>	Artificial Sequence

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<220>
<223>    construct for expression of Bioadhesive protein(mgfp-5) in pMDG05
vector
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<220>
<221> CDS
<222> (1)..(351)
<223> Bioadhesive recombinant protein expressed in pMDG05 vector
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<400>																15		
atg	ggg	ggt	tct	cat	cat	cat	cat	cat	cat	ggt	atg	gct	agc	atg	act		48	
Met	Gly	Gly	Ser	His	His	His	His	His	His	Gly	Met	Ala	Ser	Met	Thr			
1				5					10					15				
ggt	gga	cag	caa	atg	ggt	cgg	act	ctg	tac	gac	gat	gac	gat	aag	gat		96	
Gly	Gly	Gln	Gln	Met	Gly	Arg	Thr	Leu	Tyr	Asp	Asp	Asp	Asp	Lys	Asp			
			20					25					30					
cga	tgg	gga	tcc	gag	ctc	gag	atc	tgc	agc	agt	tct	gaa	gaa	tac	aag		144	
Arg	Trp	Gly	Ser	Glu	Leu	Glu	Ile	Cys	Ser	Ser	Ser	Glu	Glu	Tyr	Lys			
		35					40					45						
ggt	ggt	tat	tac	cca	ggc	aat	tcg	aac	cac	tat	cat	tca	ggt	ggt	agt		192	
Gly	Gly	Tyr	Tyr	Pro	Gly	Asn	Ser	Asn	His	Tyr	His	Ser	Gly	Gly	Ser			
	50					55					60							
tat	cac	gga	tcc	ggc	tac	cat	gga	gga	tat	aag	gga	aag	tat	tac	gga		240	
Tyr	His	Gly	Ser	Gly	Tyr	His	Gly	Gly	Tyr	Lys	Gly	Lys	Tyr	Tyr	Gly			
65					70					75					80			

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aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa tac aag 288
Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys
85 90 95

tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag aag tat 336
Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr
100 105 110

tat gga ggt agc agt taa 354
Tyr Gly Gly Ser Ser
115

<210> 16
<211> 117
<212> PRT
<213> Artificial Sequence

<400> 16
Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr
1 5 10 15
Gly Gly Gln Gln Met Gly Arg Thr Leu Tyr Asp Asp Asp Asp Lys Asp
20 25 30
Arg Trp Gly Ser Glu Leu Glu Ile Cys Ser Ser Ser Glu Glu Tyr Lys
35 40 45
Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly Gly Ser
50 55 60
Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr Tyr Gly
65 70 75 80
Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys
85 90 95
Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr
100 105 110
Tyr Gly Gly Ser Ser
115

<210> 17
<211> 456
<212> DNA
<213> Artificial Sequence

<220>
<223> construct for expression of Bioadhesive protein(mgfp-150) in
pMDG150 vector

<220>
<221> CDS
<222> (1)..(453)
<223> Bioadhesive recombinant protein expressed in pMDG150 vector

<400> 17
atg ggg ggt tct cat cat cat cat cat cat ggt atg gct agc gct aaa 48

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Met	Gly	Gly	Ser	His	His	His	His	His	His	Gly	Met	Ala	Ser	Ala	Lys	
1				5					10					15		
ccg	tct	tac	ccg	ccg	acc	tac	aaa	gca	aaa	ccc	tcg	tac	cca	ccg	act	96
Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	
			20					25					30			
tat	aag	gct	aaa	cct	agc	tat	cca	cct	acg	tac	aaa	gct	aaa	ccg	tct	144
Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	
		35					40					45				
tac	ccg	ccg	act	tac	aaa	gca	aaa	ccg	tcc	tac	cct	ccg	acc	tat	aag	192
Tyr	Pro	Pro	Thr	Tyr	Lys	Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	
	50					55				60						
gct	aaa	ccg	agt	tac	ccc	ccg	act	tac	aaa	ggc	tgc	agt	tct	gaa	gaa	240
Ala	Lys	Pro	Ser	Tyr	Pro	Pro	Thr	Tyr	Lys	Gly	Cys	Ser	Ser	Glu	Glu	
65				70				75						80		
tac	aag	ggg	ggg	tat	tac	cca	ggc	aat	tcg	aac	cac	tat	cat	tca	ggg	288
Tyr	Lys	Gly	Gly	Tyr	Tyr	Pro	Gly	Asn	Ser	Asn	His	Tyr	His	Ser	Gly	
			85					90					95			
ggg	agt	tat	cac	gga	tcc	ggc	tac	cat	gga	gga	tat	aag	gga	aag	tat	336
Gly	Ser	Tyr	His	Gly	Ser	Gly	Tyr	His	Gly	Gly	Tyr	Lys	Gly	Lys	Tyr	
			100					105					110			
tac	gga	aag	gca	aag	aaa	tac	tat	tat	aaa	tat	aaa	aac	agc	gga	aaa	384
Tyr	Gly	Lys	Ala	Lys	Lys	Tyr	Tyr	Tyr	Lys	Tyr	Lys	Asn	Ser	Gly	Lys	
		115					120					125				
tac	aag	tat	cta	aag	aaa	gct	aga	aaa	tac	cat	aga	aag	ggg	tac	aag	432
Tyr	Lys	Tyr	Leu	Lys	Lys	Ala	Arg	Lys	Tyr	His	Arg	Lys	Gly	Tyr	Lys	
	130					135					140					
aag	tat	tat	gga	ggg	agc	agt			taa							456
Lys	Tyr	Tyr	Gly	Gly	Ser	Ser										
145				150												

<210> 18
 <211> 151
 <212> PRT
 <213> Artificial Sequence

<400> 18
 Met Gly Gly Ser His His His His His His Gly Met Ala Ser Ala Lys
 1 5 10 15
 Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr
 20 25 30
 Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser
 35 40 45
 Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys
 50 55 60
 Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Gly Cys Ser Ser Glu Glu
 65 70 75 80
 Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly
 85 90 95

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Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr
      100              105              110

Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys
      115              120              125

Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys
      130              135              140

Lys Tyr Tyr Gly Gly Ser Ser
145              150

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<210>      19
<211>      540
<212>      DNA
<213>      Artificial Sequence

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<220>
<223>      construct for expression of Bioadhesive protein(mgfp-051) in
pMDG051 vector

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<220>
<221>      CDS
<222>      (1)..(537)
<223>      Bioadhesive recombinant protein expressed in pMDG051 vector

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<400>      19
atg ggg ggt tct cat cat cat cat cat cat ggt atg gct agc atg act      48
Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr
  1              5              10              15

ggt gga cag caa atg ggt cgg act ctg tac gac gat gac gat aag gat      96
Gly Gly Gln Gln Met Gly Arg Thr Leu Tyr Asp Asp Asp Asp Lys Asp
              20              25              30

cga tgg gga tcc gag ctc gag atc tgc agc agt tct gaa gaa tac aag      144
Arg Trp Gly Ser Glu Leu Glu Ile Cys Ser Ser Ser Glu Glu Tyr Lys
              35              40              45

ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt ggt agt      192
Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly Gly Ser
              50              55              60

tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat tac gga      240
Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr Tyr Gly
              65              70              75              80

aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa tac aag      288
Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys
              85              90              95

tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag aag tat      336
Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr
              100              105              110

tat gga ggt agc agt gaa ttc gct aaa ccg tct tac ccg ccg acc tac      384
Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro Thr Tyr
              115              120              125

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aaa gca aaa ccc tcg tac cca ccg act tat aag gct aaa cct agc tat 432
Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr
130 135 140

cca cct acg tac aaa gct aaa ccg tct tac ccg ccg act tac aaa gca 480
Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala
145 150 155 160

aaa ccg tcc tac cct ccg acc tat aag gct aaa ccg agt tac ccc ccg 528
Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro
165 170 175

act tac aaa taa 540
Thr Tyr Lys

<210> 20
<211> 179
<212> PRT
<213> Artificial Sequence

<400> 20
Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr
1 5 10 15
Gly Gly Gln Gln Met Gly Arg Thr Leu Tyr Asp Asp Asp Asp Lys Asp
20 25 30
Arg Trp Gly Ser Glu Leu Glu Ile Cys Ser Ser Ser Glu Glu Tyr Lys
35 40 45
Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly Gly Ser
50 55 60
Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr Tyr Gly
65 70 75 80
Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys
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Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr
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Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro Thr Tyr
115 120 125
Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr
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tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa ccg tct      144
Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser
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Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys
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Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr
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Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys
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Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys
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Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro
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acc tac aaa gca aaa ccc tcg tac cca ccg act tat aag gct aaa cct      528
Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro
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Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr
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 Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly
 85 90 95
 Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr
 100 105 110
 Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys
 115 120 125
 Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys
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 Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro
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 Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro
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